



## MODEL 4630M12 & 4630M14 TRIAxIAL ACCELEROMETERS

### SPECIFICATIONS

- MEMS DC Triaxial Accelerometer
- <2.0% Total Error Band
- Titanium Housing with Rugged Cable
- Ultra-Stable, DC to 2000Hz Response
- Exceptional Thermal Performance
- <2.0% Total Error Band
- <0.1% Linearity Accuracy

### FEATURES

- $\pm 2g$  to  $\pm 200g$  Dynamic Range
- Three Independent Circuit
- Amplified Output, Signal Conditioned
- Gas Damped MEMS Sensors
- Integral Strain Relief
- 8 to 36Vdc Excitation Voltage
- 6000g Shock Protection

### APPLICATIONS

- Flight Testing
- Flutter and Nacelle Vibrations
- Structural Testing
- Test and Instrumentation
- Performance Testing
- Road Load Testing

The 4630M12 and 4630M14 series accelerometers are ultra-stable MEMS DC triaxial vibration sensors available in ranges from  $\pm 2$  to  $\pm 200g$ . These accelerometers feature exceptional accuracy over a full operating temperature range of  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  with a Total Error Band of <2%.

The model 4630M12 and 4630M14 accelerometers incorporate a gas damped variable capacitance MEMS sensing element with integral over-range stops for high-g shock protection and a wide bandwidth from DC to 2000Hz. The accelerometers are packaged in a miniature, welded Titanium housing with a rugged strain relief and cable with integral Polyamide over-braid designed for harsh and demanding measurement applications.

For single axis version, TE Connectivity (TE) also offers the model 4602 and 4604 accelerometers.

**PERFORMANCE SPECIFICATIONS**

All values are typical at +24°C, 80Hz and 12Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

Parameters								Notes
<b>DYNAMIC</b>								
Range (g)	±2	±5	±10	±30	±50	±100	±200	
Sensitivity, Differential (mV/g)	1000	400	200	67	40	20	10	±5%
Frequency Response (Hz)	0-250	0-700	0-1000	0-1500	0-1500	0-1500	0-1500	±5%
Frequency Response (Hz)	0-500	0-1000	0-1500	0-2000	0-2000	0-2000	0-2000	±1dB
Non-Linearity (%FSO)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<3	<3	<1 Typical
Damping Ratio	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
Shock Limit (g)	6000	6000	6000	6000	6000	6000	6000	
Residual Noise (µV RMS)	360	380	400	440	480	500	500	Passband
Spectral Noise (µg/√Hz)	14	28	45	137	231	464	920	Passband

<b>ELECTRICAL</b>								
Zero Acceleration Output (mV)	±50							Differential
Excitation Voltage (Vdc)	8 to 36							
Excitation Current (mA)	<7 per channel							
Common Mode Voltage (Vdc)	1.22							
Full Scale Output (differential)	±2 Vpk (FSO=2V)							
Full Scale Output (single-ended)	+0.22 to 2.22 Vpk (FSO=1V)							
Output Resistance (Ω)	<100							
Insulation Resistance (MΩ)	>100							@100Vdc
Turn On Time (msec)	<100							
Ground Isolation	Isolated from Mounting Surface							

<b>ENVIRONMENTAL</b>								
Thermal Zero Shift (%FSO/°C)	±0.004							Typical
Thermal Sensitivity Shift (%/°C)	±0.008							Typical
Operating Temperature (°C)	-55 to 125							
Storage Temperature (°C)	-55 to 125							
Humidity (MEMS Sensor and Electronics)	Hermetically Sealed							
Humidity (Housing)	Epoxy Sealed, IP65							
Total Error Band	<2% (RSS of Non-Linearity, Thermal Zero Shift, and Thermal Sensitivity Shift)							

<b>PHYSICAL</b>								
Case Material	Titanium							
Cable	PFA Insulated Conductors, Braided Shield, TPE Jacket, 6-6 Polyamide Outer Braid							
Weight (grams)	30 (cable not included)							
Mounting	2x #4 or M3 Screws							
Mounting Torque	6 lb-in (0.7 N-m)							

**Calibration supplied:** CS-FREQ-0100 NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Response Limit

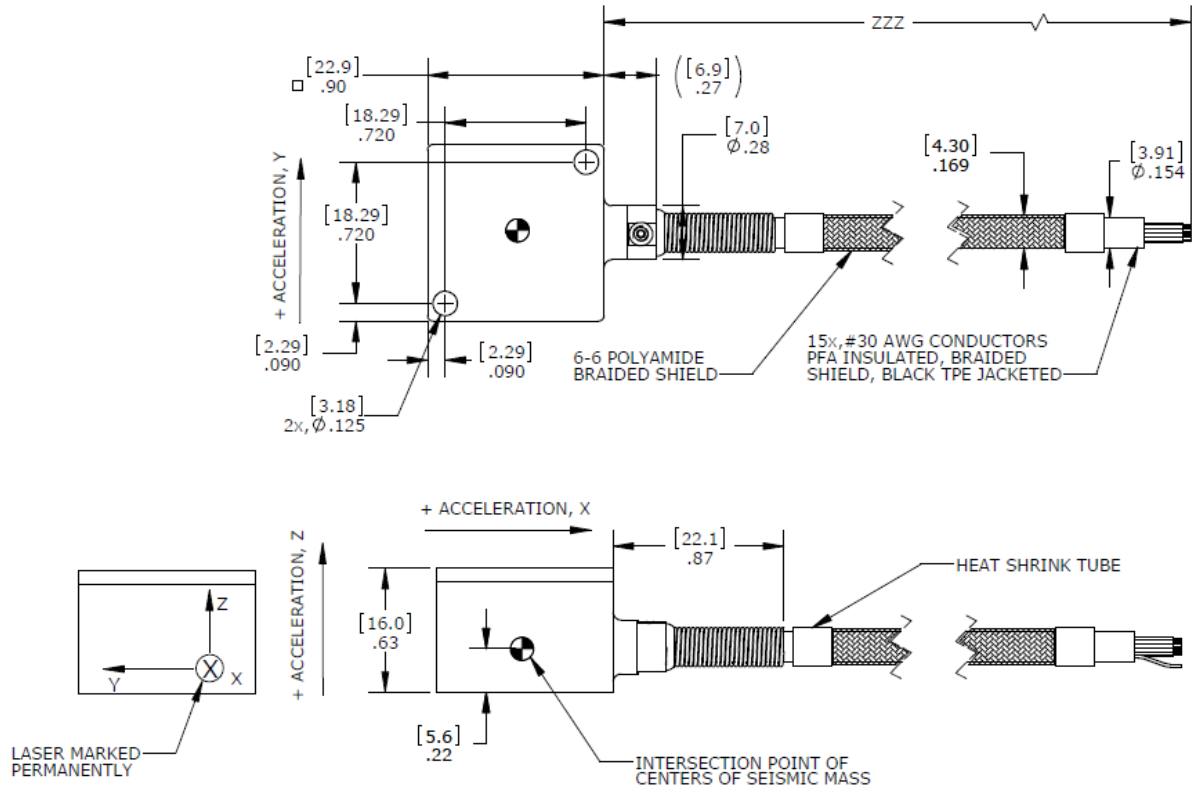
**Supplied accessories:** AC-D02855 2x #4-40 (1<sup>1/8</sup> inch length) Socket Head Cap Screw and Washer

**Optional accessories:** AC-D02744 Adhesive Mounting Adaptor  
121 3-Channel Precision Low Noise DC Amplifier

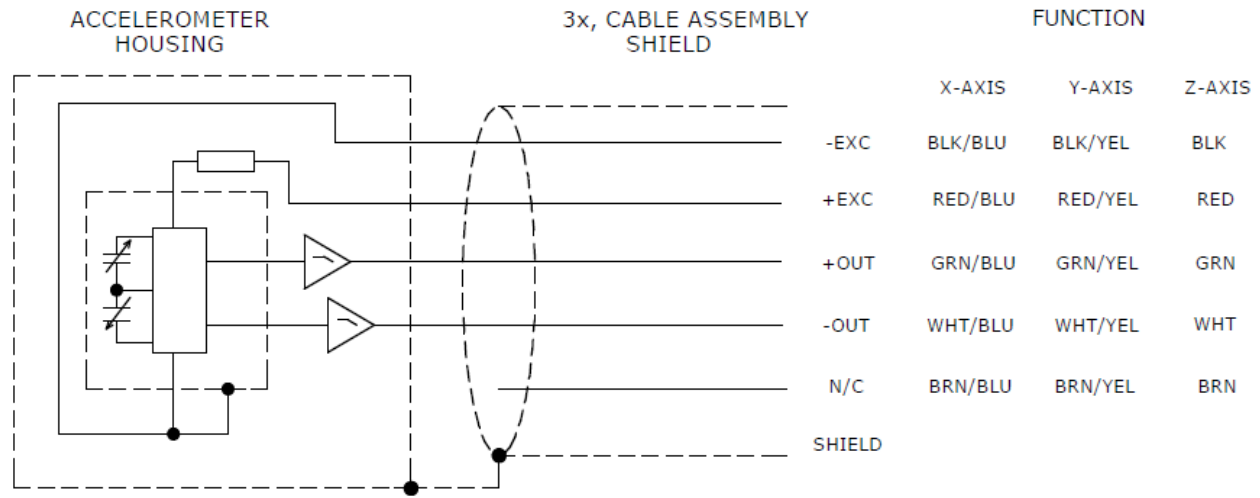
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# MODEL 4630M12 & 4630M14 ACCELEROMETERS

## DIMENSIONS, MODEL 4630M12

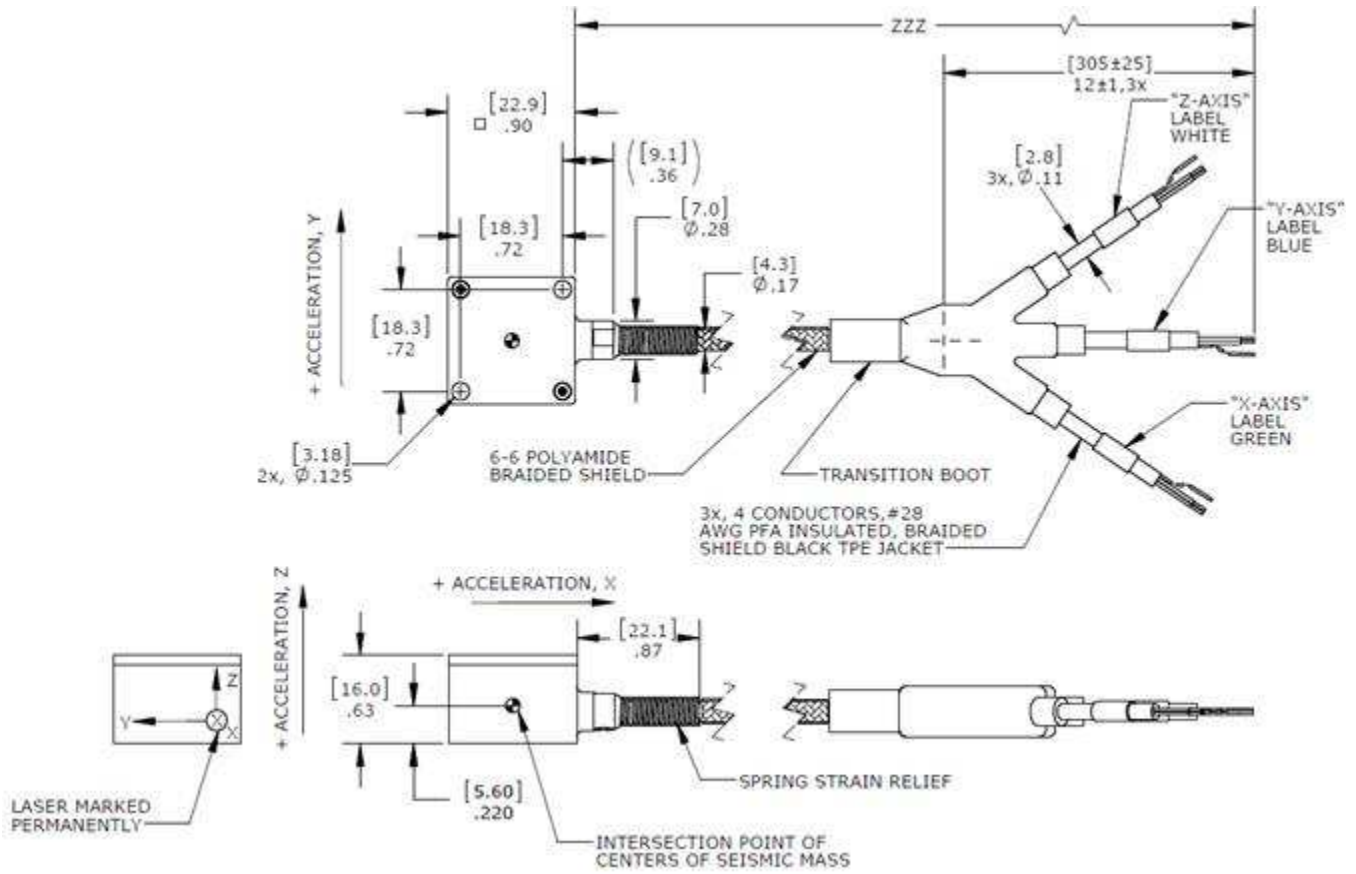


## SCHEMATIC, MODEL 4630M12

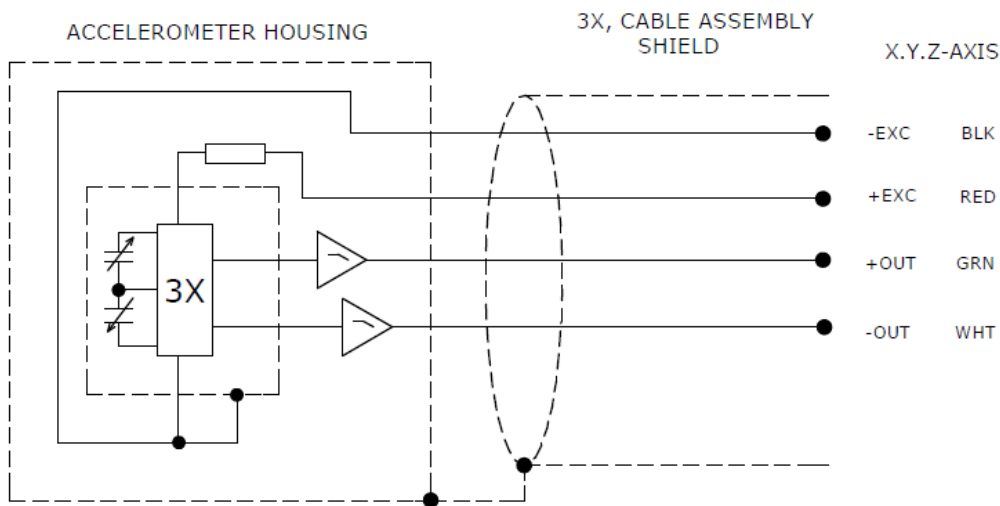


# MODEL 4630M12 & 4630M14 ACCELEROMETERS

## DIMENSIONS, MODEL 4630M14



## SCHEMATIC, MODEL 4630M14



**ORDERING INFORMATION**

<p><b>4630M12 (15-conductor cable straight)</b>  <b>4630M14 (tri-boot branching to X/Y/Z axes)</b></p> <p><b>Range</b>                  002 = 2g                  005 = 5g                  010 = 10g                  030 = 30g                  050 = 50g                  100 = 100g                  200 = 200g</p> <p><b>Cable length</b>                  120 = 120 inches, 10 feet                  240 = 240 inches, 20 feet                  360 = 360 inches, 30 feet                  480 = 480 inches, 40 feet                  600 = 600 inches, 50 feet</p> <p>197 = 197 inches, 5 meters                  394 = 394 inches, 10 meters</p>	<b>GGG</b>	<b>ZZZ</b>	<b>D</b>	
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Example;           4630M12-010-120-D  
 Model 4630M12 (straight cable), 10g range, 120inch (10ft) cable length

Example;           4630M14-005-197-D  
 Model 4630M14 (tri-boot installed), 5g range, 197inch (5m) cable length

**NORTH AMERICA**

Measurement Specialties, Inc.,  
 a TE Connectivity Company  
 Tel: 800-522-6752  
[customercare.hmpt@te.com](mailto:customercare.hmpt@te.com)

**EUROPE**

MEAS France SAS  
 a TE Connectivity Company  
 Tel: +31 73 624 6999  
[customercare.lcsb@te.com](mailto:customercare.lcsb@te.com)

**ASIA**

Measurement Specialties (China), Ltd.,  
 a TE Connectivity Company  
 Tel: 0400-820-6015  
[customercare.shzn@te.com](mailto:customercare.shzn@te.com)

**TE.com/sensorsolutions**

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